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PATENT

Attorney Reference Number 3382-66128-01
Application Number 10/622,284

Claims

1.-20. (Canceled)

21. (Original) A method of decoding a field-coded macroblock comprising an intra-coded field and a second field, the method comprising:
finding a DC differential for a current block in the intra-coded field;
finding a DC predictor for the current block; and
obtaining a DC value for the current block, wherein the obtaining comprises adding the DC predictor to the DC differential;
wherein the intra-coded field is decoded independently from the second field.

22. (Original) A method of decoding a field-coded macroblock comprising an intra-coded field and a second field, the method comprising:
finding a DC differential for a current block in the intra-coded field;
selecting a DC predictor from a group of candidate DC predictors, wherein the group of candidate DC predictors comprises DC values from blocks adjacent to the current block, wherein a candidate DC predictor is a missing candidate DC predictor if the candidate DC predictor is not intra-coded, and wherein the selected DC predictor is a non-missing candidate DC predictor; and
obtaining a DC value for the current block, wherein the obtaining comprises adding the selected DC predictor to the DC differential.

23. (Original) The method of claim 22 wherein the selected DC predictor comprises a DC value from a previously decoded block.

24. (Original) The method of claim 22 wherein a candidate DC predictor is a missing candidate DC predictor if the candidate DC predictor is outside a picture boundary.

25. (Original) The method of claim 22 wherein the blocks adjacent to the current block are the top, top-left and left adjacent blocks.

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26. (Original) A computerized method of encoding an interlaced macroblock, the method comprising:

performing DC prediction for a current block in the interlaced macroblock, wherein the DC prediction comprises adding a selected DC predictor for the current block to a DC differential; and

selectively enabling AC prediction for blocks in the macroblock.

27. (Original) The method of claim 26 wherein the AC prediction is enabled, and wherein AC coefficients are selected for differential coding based on the selected DC predictor for the current block.

28. (Original) The method of claim 27 wherein, if no DC predictor is used, no AC coefficients are selected for differential coding.

29. (Original) The method of claim 26 further comprising, in a bit stream, signaling whether AC prediction is enabled for blocks in the macroblock.

30. (Original) The method of claim 29 wherein the macroblock is a frame macroblock, and wherein the signaling comprises sending a one-bit flag indicating whether AC prediction is performed for all blocks in the frame macroblock.

31. (Original) The method of claim 29 wherein the interlaced macroblock is a field macroblock, and wherein the signaling comprises sending a one-bit flag indicating whether AC prediction is performed for blocks in a first field in the field macroblock.

32. (Original) The method of claim 31 wherein the signaling further comprises sending a one-bit flag indicating whether AC prediction is performed for blocks in a second field in the field macroblock.

33.-59. (Canceled)

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60. (New) The method of claim 21 wherein the finding the DC differential comprises decoding an encoded DC differential.

61. (New) The method of claim 22 wherein the finding the DC differential comprises decoding an encoded DC differential.

62. (New) One or more computer-readable media having stored thereon computer-executable instructions for causing one or more computers to perform a method comprising:
finding a DC differential for a current block in an intra-coded field of a current macroblock;
finding a DC predictor for the current block; and
obtaining a DC value for the current block, wherein the obtaining comprises adding the DC predictor to the DC differential;
wherein the intra-coded field is decoded independently from a second field of the current macroblock.

63. (New) The computer-readable media of claim 62 wherein the finding the DC differential comprises decoding an encoded DC differential.

64. (New) One or more computer-readable media having stored thereon computer-executable instructions for causing one or more computers to perform a method comprising:
finding a DC differential for a current block in an intra-coded field of a current macroblock;
selecting a DC predictor from a group of candidate DC predictors, wherein the group of candidate DC predictors comprises DC values from blocks adjacent to the current block, wherein a candidate DC predictor is a missing candidate DC predictor if the candidate DC predictor is not intra-coded, and wherein the selected DC predictor is a non-missing candidate DC predictor; and
obtaining a DC value for the current block, wherein the obtaining comprises adding the selected DC predictor to the DC differential.

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65. (New) The computer-readable media of claim 64 wherein the finding the DC differential comprises decoding an encoded DC differential.

66. (New) The computer-readable media of claim 64 wherein the selected DC predictor comprises a DC value from a previously decoded block.

67. (New) The computer-readable media of claim 64 wherein a candidate DC predictor is a missing candidate DC predictor if the candidate DC predictor is outside a picture boundary.

68. (New) The computer-readable media of claim 64 wherein the blocks adjacent to the current block are the top, top-left and left adjacent blocks.

69. (New) One or more computer-readable media having stored thereon computer-executable instructions for causing one or more computers to perform a method comprising:
performing DC prediction for a current block in an interlaced macroblock, wherein the DC prediction comprises adding a selected DC predictor for the current block to a DC differential; and
selectively enabling AC prediction for blocks in the interlaced macroblock.

70. (New) The computer-readable media of claim 69 wherein the AC prediction is enabled, and wherein AC coefficients are selected for differential coding based on the selected DC predictor for the current block.

71. (New) The computer-readable media of claim 70 wherein, if no DC predictor is used, no AC coefficients are selected for differential coding.

72. (New) The computer-readable media of claim 69 wherein the method further comprises, in a bit stream, signaling whether AC prediction is enabled for blocks in the interlaced macroblock.

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73. (New) The computer-readable media of claim 72 wherein the interlaced macroblock is a frame macroblock, and wherein the signaling comprises sending a one-bit flag indicating whether AC prediction is performed for all blocks in the frame macroblock.

74. (New) The computer-readable media of claim 72 wherein the interlaced macroblock is a field macroblock, and wherein the signaling comprises sending a one-bit flag indicating whether AC prediction is performed for blocks in a first field in the field macroblock.

75. (New) The computer-readable media of claim 74 wherein the signaling further comprises sending a one-bit flag indicating whether AC prediction is performed for blocks in a second field in the field macroblock.

76. (New) A system comprising:
means for finding a DC differential for a current block in an intra-coded field of a current macroblock;
means for finding a DC predictor for the current block; and
means for obtaining a DC value for the current block, wherein the means for obtaining comprises means for adding the DC predictor to the DC differential;
wherein the intra-coded field is capable of being decoded independently from a second field of the current macroblock.

77. (New) The system of claim 76 wherein the means for finding the DC differential comprises means for decoding an encoded DC differential.

78. (New) A system comprising:
means for finding a DC differential for a current block in an intra-coded field of a current macroblock;
means for selecting a DC predictor from a group of candidate DC predictors, wherein the group of candidate DC predictors comprises DC values from blocks adjacent to the current

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block, wherein a candidate DC predictor is a missing candidate DC predictor if the candidate DC predictor is not intra-coded, and wherein the selected DC predictor is a non-missing candidate DC predictor; and

means for obtaining a DC value for the current block, wherein the means for obtaining comprises means for adding the selected DC predictor to the DC differential.

79. (New) The system of claim 78 wherein the means for finding the DC differential comprises means for decoding an encoded DC differential.

80. (New) The system of claim 78 wherein the selected DC predictor comprises a DC value from a previously decoded block.

81. (New) The system of claim 78 wherein a candidate DC predictor is a missing candidate DC predictor if the candidate DC predictor is outside a picture boundary.

82. (New) The system of claim 78 wherein the blocks adjacent to the current block are the top, top-left and left adjacent blocks.

83. (New) A system comprising:

means for performing DC prediction for a current block in an interlaced macroblock, wherein the means for performing DC prediction comprises means for adding a selected DC predictor for the current block to a DC differential; and

means for selectively enabling AC prediction for blocks in the interlaced macroblock.

84. (New) The system of claim 83 further comprising means for selecting AC coefficients for differential coding based on a selected DC predictor for the current block.

85. (New) The system of claim 83 further comprising means for signaling in a bit stream whether AC prediction is enabled for blocks in the interlaced macroblock.

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86. (New) The system of claim 85 wherein the interlaced macroblock is a frame macroblock, and wherein the means for signaling comprises means for sending a one-bit flag indicating whether AC prediction is performed for all blocks in the frame macroblock.

87. (New) The system of claim 85 wherein the interlaced macroblock is a field macroblock, and wherein the means for signaling comprises means for sending a one-bit flag indicating whether AC prediction is performed for blocks in a first field in the field macroblock.

88. (New) The system of claim 87 wherein the means for signaling further comprises means for sending a one-bit flag indicating whether AC prediction is performed for blocks in a second field in the field macroblock.